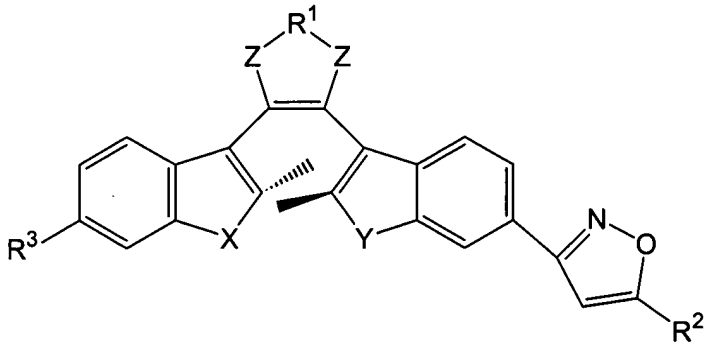
IN THE CLAIMS

1. (CURRENTLY AMENDED) A photochromic diarylethene compound having isoxazole group expressed in the following formula (1),



(1)

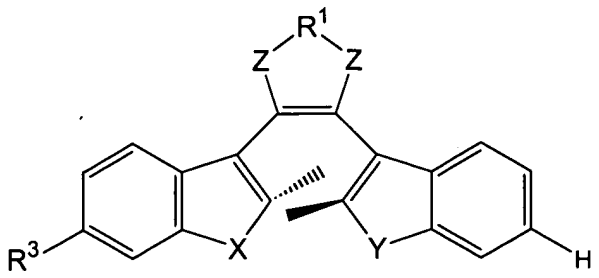
wherein R^1 is a direct bond~~, O, or C_1-C_3 alkylene optionally substituted with fluoro~~; R^2 is a hydrogen atom, $(CR^4H)_nOH$ or $C_6(R5)_mH_l$; R^3 is selected from the group consisting of a hydrogen atom, phenylisoxazole, hydroxymethylisoxazole, acetyl, hydroxy, and phenyl; R^4 is hydrogen or C_1-C_{10} alkyl; R^5 is chloro, nitro, bromo, or the same as R^4; X and Y are ~~independently O, N, or~~ S; Z is methylene optionally substituted with fluoro or carbonyl; and n, m and l are an integer of 1 to 5.

2. (CURRENTLY AMENDED) A method for preparing the diarylethene compound of claim 1, comprising the steps:

(I) formylating diarylethene compound of formula (2);

(ii) reacting the formylated compound with $NH_20H \cdot HCl$ and aqueous basic solution in series and reacting with N-chlorosuccinimide (NCS); and

(iii) reacting with acetylene compound substituted with R^2 in the presence of base catalyst,



(2)

wherein R^1 is a direct bond~~, O or C_1-C_3 alkylene optionally substituted with fluoro~~; R^3 is selected from the group consisting of a hydrogen atom, phenylisoxazole, hydroxymethylisoxazole, acetyl, hydroxy, and phenyl; X and Y are ~~independently O, N, or~~ S; and Z is methylene optionally substituted with a fluoro atom or carbonyl.

3. (WITHDRAWN)
4. (WITHDRAWN)
5. (WITHDRAWN)
6. (WITHDRAWN)
7. (WITHDRAWN)
8. (WITHDRAWN)
9. (WITHDRAWN)
10. (WITHDRAWN)

11. (NEW) A compound selected from the group consisting of 1-(6'-(5-hydroxymethylisoxazol)-2'-methylbenzo[b]thiophen-3'-yl)-2-(2"-methylbenzo[b]thiophen-3'-yl)hexafluorocyclopentene, 1-(6'-(5-phenylisoxazol)-2'-methylbenzo[b]thiophen-3'-yl)-2-(2"-methylbenzo[b]thiophen-3'-yl)hexafluorocyclopentene, and di(6'-phenylisoxazol-2'-methylbenzo[b]thiophen-3'-yl)hexafluorocyclopentene.